

(Note that crossover data from hypoploids are shown as such and not equated to conventional map distances.)

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6. Two virescent mutants on the long arm of chromosome 8.

In 1964, a virescent trait segregated in a stock of Chapalote derived from Beckett Accession 552. In both field and sandbench, virescent seedlings typically greened first at leaf edge and tip, with the color grading smoothly from yellow or light green in the middle to green at the edge. In 1970, \pm/v -A552 plants were crossed by the A-B translocation set; virescent hypoploids segregated in the progeny of TB-8a.

Recently, among the mutants produced by Neuffer by EMS treatment, a virescent was uncovered by TB-8a in tests with the A-B translocation set. The phenotype is identical to that of v -A552 described above. Neither this mutant (v -E25) nor v -A552 is allelic to v_{16} . It is not unlikely that v -A552 and v -E25 are allelic, but test results are not yet available.

Because our v_{16} stocks are difficult to handle, v -A552 is being used in place of v_{16} as the tester for TB-8a.

In warm sandbench tests, v_{16} can rarely be separated from normal, while v -A552 can usually be classified easily. Conditions in an unheated sandbench favor ready classification of both virescents.

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7. A chlorophyll mutant associated with a_3 located on chromosome 3.

For some years we have had a stock of a_3 that carries a yellow-green or extreme golden type mutant. Crosses of a_3 golden by the A-B translocation series have produced progeny in which a_3 (recessive plant color) was uncovered by TB-3a and the golden mutant was uncovered by TB-3b. Our data confirm Earl Patterson's oral report to the Maize Genetics Conference in 1971 that a_3 is beyond the breakpoint of TB-3a. It is therefore on 3L rather than on chromosome 10 as reported in Emerson, Beadle, and Fraser (1935). Since the golden factor is distal to TB-3b, it lies

in 3S. We designate this gene golden-5 (g_5).

The stock from which a_3 and g_5 were derived was Coop. 54-1342, labeled $a_3 g_1$. Three backcrosses to normal failed to eliminate the golden when a_3 plants were extracted. Golden plants are usually weaker than normal; in some backgrounds they are semi-lethal. The leaves vary from yellow-green to pale or whitish golden; leaf sheaths are pale or nearly white. In contrast, g_1 plants derived from other Coop stocks are relatively vigorous, with much greener leaves and leaf sheaths when crossed to the same lines. Sandbench tests of $+/g_1 \times +/g_5$ confirm that the two genes are not allelic. In our experience, g_5 is easier to classify in the sandbench than g_1 .

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8. New mutants located by A-B translocation method.

Following procedures described in previous years (MNL 45:144, 46:131), 156 mutants were tested with a set of A-B translocations that had been improved by the addition of TB4L,9S₆₂₂₂ and 4L,9S₆₅₀₄ (from Robertson). The collection included mostly seedling traits but some endosperm and mature plant mutants from various sources. Most were the result of chemical treatment.

60 of the 156 tested were located to chromosome. They are listed below by chromosome arm and can be added to those in Figure 1, MNL 46:131.

<u>1S</u>	<u>1L</u>	<u>2S</u>	<u>2L</u>	<u>3S</u>	<u>3L</u>	<u>4S</u>
1 <u>wl</u>	1 <u>wl</u>	1 <u>v</u>	2 <u>v</u>	1 <u>v</u>	1 <u>gl</u>	1 <u>pg</u>
1 <u>v</u>	2 <u>v</u>	1 <u>pg</u>		2 <u>d</u>		1 <u>ad</u>
1 <u>ad</u>	3 <u>pg</u>	1 <u>nl</u>				
2 <u>et</u>	1 <u>d</u>	4 <u>d</u>				
1 colorless defective kernel	4 <u>ad</u> 1 <u>nl</u>	1 <u>gl</u> 1 <u>et</u>				
1 rough kernel	1 colorless kernel	1 pitted kernel 1 collapsed kernel				